

To: Woolford, James[Woolford.James@epa.gov]; Stalcup, Dana[Stalcup.Dana@epa.gov]; Rigger, Don[Rigger.Don@epa.gov]; Wells, Suzanne[Wells.Suzanne@epa.gov]; Gartner, Lois[Gartner.Lois@epa.gov]; Dreyfus, Melissa G.[Dreyfus.Melissa@epa.gov]; Fitz-James, Schatzl[Fitz-James.Schatzl@epa.gov]; Ammon, Doug[Ammon.Doug@epa.gov]; Scozzafava, MichaelE[Scozzafava.MichaelE@epa.gov]; Jeng, Richard[Jeng.Richard@epa.gov]; Margand, Freya[Margand.Freya@epa.gov]
From: Zaragoza, Larry
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Water Pollution

EPA Error Caused Colorado Mine Failure: Report



BNA Snapshot

Findings: EPA's development of a plan to open the Gold King Mine in southwest Colorado in a manner that appeared to guard against blowout instead led directly to the failure.

Implication: Conditions and actions that led to Gold King Mine incident are not isolated or unique and are, in fact, surprisingly prevalent, Bureau of Reclamation reports.

What's Next: Report makes four recommendations, including having a potential failure modes analysis in project planning when reopening a flooded abandoned mine.

By Tripp Baltz

Oct. 22—The Environmental Protection Agency opened the Gold King Mine in southwest Colorado while attempting to guard against blowout but instead directly caused the release of more than 3 million gallons of mining wastewater and sediment into the Animas River watershed, the Interior Department said Oct. 22.

Conditions leading to the Aug. 5 spill at the mine near Silverton, Colo., were not isolated or unique but are, "in fact, surprisingly prevalent," said a [report](#) on a technical evaluation released Oct. 22 by the DOI Bureau of Reclamation Technical Service Center in Denver.

The final events leading to the "uncontrolled release of water" which contaminated rivers in three states and lands belonging to three Native American tribes occurred because of a "combination of an inadequately designed closure of the mine portal in 2009 and a misinterpretation of the groundwater conditions when reopening the mine portal in 2014 and 2015," the report said.

Triggered Spill

EPA investigators triggered the spill while clearing dirt and debris from the mine adit, or entrance tunnel, in an attempt to reopen the mine. The spill sent wastewater laden with toxic sediment and heavy metals into the Animas and San Juan Rivers in Colorado and

New Mexico before pouring into the Colorado River at Lake Powell in Utah. It forced the closure of the rivers and intakes into municipal drinking water supplies and irrigation systems.

The report, which was peer-reviewed by the U.S. Geological Survey and the Army Corps of Engineers, noted that the standards of practice for reopening and remediating flooded inactive and abandoned mines are inconsistent from one agency to another. There are an estimated 500,000 abandoned and inactive mines across the country, most of them in western states.

The release at the Gold King Mine was the result of a series of events spanning several decades, the report said. The blowout occurred after EPA, in consultation with the Colorado Division of Reclamation, Mining and Safety, concluded the adit was partially full of water based on excavations made into the backfill placed at the mine's portal. When seepage was observed about six feet above the adit floor, it was incorrectly concluded that the water level inside the mine was at a similar elevation—a few feet below the top of the adit roof, the report said.

"This error resulted in development of a plan to open the mine in a manner that appeared to guard against blowout but instead led directly to the failure," the report said.

Method Used Before

After the EPA concluded the adit was not full to the top with water, it implemented a plan to open the mine in a manner similar to one used to successfully open a nearby mine, the Red and Bonita Mine, in 2011. A critical difference between that reopening and the reopening of Gold King was the use of a drill rig to bore into the mine from above to determine the level of the mine pool before excavating backfill at the portal.

"Although this was apparently considered at Gold King, it was not done," the report stated. "Had it been done, the plan to open the mine would have been revised, and the blowout would not have occurred."

The EPA issued a statement Oct. 22 addressing its decision not to use a drill rig to bore into the mine portal, saying its own internal review team "found that site conditions made it difficult to undertake such drilling to determine pressure within the mine."

The Review Team identified technical challenges, safety, timing, and cost as factors in considering the technique, the agency said, including identifying "the steepness and instability of slopes at the site as a key safety consideration."

To contact the reporter on this story: Tripp Baltz at abaltz@bna.com

To contact the editor responsible for this story: Larry Pearl at lpearl@bna.com

For More Information

The technical evaluation is available at <http://on.doi.gov/1RdRhD6>